

§103(a) as being unpatentable over Moriyama '802 (US Patent No. 5,713,802).

Claims 1 and 5-14 are rejected under 35 USC §103(a) as being unpatentable over Moriyama '802 in view of Tanaka '663 (US Patent No. 5,730,663).

Claims 1 and 3-14 are rejected under 35 USC §103(a) as being unpatentable over Moriyama '856 (US Patent No. 5,697,856) in view of Sullivan '356 (US Patent No. 6,015,356).

These rejections are traversed for the following reasons.

Present Invention

The present invention is directed to a three-piece solid golf ball which includes the following features: (1) a core having a JIS-C surface hardness of 65-83 and a deformation of 0.8 - 5.3 mm; (2) an intermediate layer having a Shore D hardness of 63-70; (3) a cover having a Shore D hardness of 45-62; and (4) a difference in the hardness of the intermediate layer and cover being within the range of 3-20. Use of these features results in advantageous properties as evidenced by the comparative test results summarized in Tables 1-7 at pages 17-28 of the specification. Specifically, Tables 4-7 at pages 24-27 show that Examples 1-6 (present invention) exhibit advantageously improved flight distance (carry), shot feel and controllability properties over Comparative Examples 1-8. Note,

for example, that if the core hardness varies over a large range or if the hardness properties of each of the cover/intermediate layer/core falls outside the cited ranges, then disadvantageous inferior properties result.

Disclosure of Moriyama '802

Moriyama '802 discloses a golf ball having a two-layer cover structure with a hard inner layer and a soft outer layer. The golf ball of Moriyama '802 comprises a core (1) and a cover formed on the core, wherein the cover has a two-layer cover structure of a hard inner cover layer (2) and a soft outer cover layer (3), and the inner cover layer (2) comprises a high-rigid polyamide resin present in an amount of not less than 5% by weight based on the total weight of the inner cover components.

Moriyama '802 fails to disclose a hardness difference that is in the range of the presently claimed invention.

Disclosure of Tanaka '663

Tanaka '663 discloses a solid golf ball which comprises a core and a cover covering the core, wherein the core has a diameter of 32.7 to 38.4 mm and a change of deformation, formed by applying to the core an initial load of 10 kg to a final load of 130 kg, of 3.5 to 6.5 mm. The cover consists of an inner layer and an outer layer in which the inner layer has a

stiffness modulus of 3,500 to 6,000 kgf/cm² and a thickness of 1.1 to 2.5 mm and the outer layer has a stiffness modulus of 3,000 to 5,500 kgf/cm², which is at least 500 kgf/cm² lower than that of the inner layer, and a thickness of 1.1 to 2.5 mm, and both the inner layer and outer layer are made of a resinous composition compound mainly of an ionomer resin.

Tanaka '663 fails to disclose an outer cover layer which has the hardness properties falling within the range of the cover layer of the golf ball of the instant invention.

Disclosure of Moriyama '856

Moriyama '856 discloses a solid golf ball comprising a core and a cover, wherein the core has a trans structure content in polybutadiene of 10 to 30%. The core is produced by vulcanizing a rubber composition containing a butadiene rubber having cis structure content of not less than 90% before vulcanization, as a base rubber, wherein an amount of trans structure after vulcanization is 10 to 30% and a difference in hardness measured by a JIS-C type hardness tester between the center of the core and each point located from the center to the surface at an interval of 5 mm is not more than 10%. The rubber composition for forming the core comprises a vulcanizing agent, a filler, an organic peroxide and an organophosphorus compound, in addition

to the butadiene rubber having cis structure content of not less than 90% before vulcanization.

Moriyama '856 fails to include all of the hardness properties for the core/intermediate layer/cover golf ball structure of the presently claimed invention.

Disclosure of Sullivan '356

Sullivan '356 discloses a multi-layer golf ball composition having a core, an inner cover and an outer cover producing regulation balls. A smaller and lighter core is produced and metal particles, or other heavy weight filler materials, are included in the inner cover compositions. The heavy weight filler particles, such as powdered metals, are included in a relatively thick inner cover layer (or mantle) formed from an ionomer resin of a solid, three-piece multi-layered golf ball. The size and weight of the core can thereby be reduced in order to produce an overall golf ball which meets, or is less than, the 1.62 ounce maximum weight limitation specified by the United States Golf Association. It has been found that the combination of the present invention produces a golf ball with an increased moment of inertia and/or a greater radius of gyration and thus generates lower spin due to the increased weight of the inner cover layer.

Sullivan '356 fails to disclose a golf ball with a cover layer having a Shore D hardness within the range of the golf ball of the present invention..

Removal of the Rejections over Moriyama '802, Tanaka '663, Moriyama '856 and Sullivan '356

The golf ball of Moriyama '802 has the characteristics as appear in Table 1.

Table 1.

	Moriyama reference '802
Ingredients	
Cis-1,4-polybutadiene	100
Zinc Acrylate	26
Zinc Oxide	29.9
Antioxidant	0.5
Dicumyl peroxide	2.0
Diphenyl disulfide	-
Balnoc R	0.5
Vulcanization conditions	145°C X 35 minutes
Core Diameter (mm)	35.5
Deformation amount (10K-130K)	4.2
Hardness (JIS-C)	
Center	68
5 mm from the center	71
10 mm from the center	73
15 mm from the center	77
Surface	75
Hardness difference	<u>9</u>

The above Table 1 has been corrected so that vulcanization occurs for 35 minutes as the response of November 26, 2001 had a typographical error in it (that showed vulcanization occurred for 30 minutes). Accordingly, another 37 CFR §1.131

declaration has also been prepared that has the value corrected in the declaration (and is attached to this Response).

The above Table 1 shows that the core of Moriyama '802 has a hardness difference outside the range of the present invention. The instant claim 1 states that "a JIS-C hardness of the core is essentially uniform from its center to surface". This is not the case with the Moriyama '802 reference (as can be seen in Table 1 above). Nowhere in Moriyama '802 is there a disclosure or even the remotest suggestion of having a JIS-C hardness of the core that is essentially uniform from its center to its surface. The examples in Moriyama '802 all fail to disclose a JIS-C hardness of the core that is essentially uniform from its center to its surface. Thus, the rejection of claims 1 and 5-14 over Moriyama '802 is inapposite because Moriyama '802 fails to disclose the elements of the instant invention. Withdrawal of the rejection is warranted and respectfully requested.

The rejection of claims 1 and 5-14 over Moriyama '802 in view of Tanaka '663 also is inapposite. As was disclosed in the specification on page 3, Tanaka '663 fails to disclose an outer cover layer which has the hardness properties falling within the range of the cover layer of the golf ball of the instant invention. This failure in hardness properties leads to shorter flight distances than is disclosed in the golf ball of the

present invention. Because the disclosure of Moriyama '802 also does not recognize the advantageously superior flight distance of the instant invention, the two references combined do not arrive at the instant invention. Thus, even if a proper *prima facie* obviousness rejection had been made out regarding the rejection over Moriyama '802 in view of Tanaka '663, (which the Applicant does not concede), the instant invention discloses unexpectedly superior properties, which are neither disclosed nor suggested anywhere in the Moriyama '802 or the Tanaka '663 reference. It is acknowledged that Tanaka '663 does realize that having small differences in hardness in the core leads to certain advantages, but Tanaka '663 fails to recognize the added advantages that can be obtained by having an outer cover layer which has the hardness properties falling within the range of the cover layer of the golf ball of the instant invention. Accordingly, the instant invention has unexpectedly superior properties that could not be surmised by the teachings of Moriyama '802 in view of Tanaka '663.

Thus, withdrawal of this rejection is also warranted and respectfully requested.

With regard to the rejection over Moriyama '856 in view of Sullivan '356, the Moriyama '856 reference mainly discloses a two-piece solid golf ball composed of a core and a single layer cover. Moriyama '856 has a statement at column 4, lines 22-29

that an intermediate layer may be present between the core and the cover and that the intermediate layer can be either rubber or thermoplastic resin (i.e., ionomer resin). There is no further disclosure in Moriyama '856 nor are there any examples in Moriyama '856 that disclose any information about intermediate layers. Thus, the Moriyama '856 reference neither discloses nor suggests what should be the hardness in the intermediate layer nor what the difference should be between the intermediate layer and the cover layer. In Comparative Example 7 of the specification, there is disclosed an intermediate layer that has a hardness difference from the cover layer of one. The golf ball of Comparative Example 7 is very similar to the two-piece golf ball that is disclosed in Moriyama '856. One of ordinary skill in the art would readily recognize that the golf ball of Comparative Example 7 has both poor shot feel and controllability (see Table 7 at page 27 in the written description).

Sullivan '356 suggests making the cover into two layers and to control the hardnesses of these two layers. Sullivan '356, however, is silent on the hardness distribution in the core. If no care is taken regarding the hardness distribution of the core rubber, the core hardness distribution naturally is too hard on the surface and too soft at the center, because the core is heat cured in a mold. Thus, the outer surface is heated sooner and

longer than that of the inner portion. This is evident when one observes the cores of the Advance 90 and Advance 100 balls disclosed in column 32 in Sullivan '356, which are determined to have a hardness of 75 on the surface and 65 at the center (in JIS-C hardness). Accordingly, the golf balls in Sullivan '356 are similar to Comparative Examples 2 and 3 in the instant application (which have both a hard surface and a soft center). These balls (i.e., Comparative Examples 2 and 3) demonstrate poor flight distance, shot feel and controllability.

Thus, the Applicant asserts that the rejection over Moriyama '856 in view of Sullivan '356 is inappropriate because the combination of Moriyama '856 and Sullivan '356 fail to recognize the unexpectedly superior properties in golf balls that are present in the instant invention. In particular, Moriyama '856 in view of Sullivan '356 fail to recognize the advantageous flight distance, shot feel and controllability that is present in the instantly claimed invention. Withdrawal of the rejection over Moriyama '856 in view of Sullivan '356 is warranted and respectfully requested.

With the above remarks, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of \$920.00 is attached hereto.

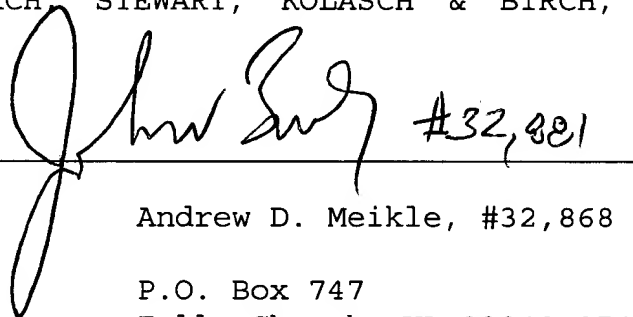
If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH STEWART, KOLASCH & BIRCH, LLP

By

A handwritten signature in dark ink, appearing to read "Andrew D. Meikle", is written over a horizontal line. To the right of the signature, the number "#32,868" is handwritten.

Andrew D. Meikle, #32,868

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